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G.M.T.
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12 33 46. I obtained a glimpse of the satellite as a *light brown spot*, and about ten seconds later I should estimate the bisection of the shadow to take place; but, my attention being directed to the reappearance of the satellite, I could not precisely note the time.

12 35 30. The satellite is a plain *dusky* spot.

12 39 35. The satellite is now a *dark, irregular* spot.

13 5 35. The satellite is now obviously *darker* than the darkest part of either of the principal belts, is about half the diameter of the shadow, and, though more nearly round, is still of an irregular figure.

13 12 25. The broad belt which now covers the southern pole of *Jupiter* is adorned with a number of bright, distinct, round spots, just like so many satellites on the face, only smaller. There are at least six, and I was enabled to mark roughly the places of five of them. This is to me quite a new phenomenon. The spots are very delicate, but very round and well defined, and, though only occasionally seen, when the air is most quiet, they undoubtedly exist, and there is no illusion. The shadow of the satellite seems to have a penumbra.

13 43 0. The air is now becoming more disturbed.

13 46 0. The satellite is now half-way over, still a little oblong. Its intensity of *shade* I should estimate to be half-way between the blackness of the shadow and the darkest parts of the belts; in *size* about two-thirds the diameter of the shadow.

"During a considerable portion of these observations the air has been remarkably fine — indeed a whole year does not yield five such nights; yet, with the power and aperture employed, the image of *Jupiter* was never *still.* The presence of the atmosphere never could be forgotten; and I received this evening a strong confirmation of the opinion I have long held, that a twenty-four-inch aperture, brought to high perfection of defining power, is not far from the maximum allowed by the atmosphere of this climate to be advantageously used on objects requiring fine *definition.*"

Extract of a Letter from Mr Lassell.

"The times of emersion of shadow and satellite on March 5 were respectively about 7^{m} and 5^{m} earlier than the times in the *Nautical Almanac*, and the entry of the 4th satellite on the disc, Feb. 28, was about 8^{m} later than the time announced.

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" I took five measures of the polar diameter of *Jupiter*, Feb. 28, with my own-made micrometer = 42″·81, circumstances very bad. On March 5 I took eight measures of the equatoreal diameter with the Munich micrometer = 44″·64, circumstances rather better, but bad."

Mr. Lassell proposes to resume these observations when the weather is favourable.

" My equatoreal-clock does admirably. All those I know go very differently, with and without a drop of oil, and I do not know that I need say less of my own."

Mr. Hartnup says, " I saw the fourth satellite on the face of *Jupiter*, on Feb. 28. It appeared to me only a few shades lighter than the shadow. I looked at the planet, unprepared for the phenomenon, and my first impression was, that I saw the shadows of two satellites. The shadow was very large, and the diameter of it and of the satellite would have admitted of measurement had the atmosphere been favourable. The definition was very bad."

Proper Motions of 875 *Stars of the Greenwich Catalogue of* 1439 *Stars, deduced by Comparison with the Places derived from Bradley's Observations, as given in the Fundamenta Astronomiæ for the Epoch* 1755. By the Rev. R. Main, M.A., of the Royal Observatory.

" One of the great objects of modern astronomy is to enable us to predict accurately the place of a given fixed star for a given epoch, and this problem the resources derived from the masses of accurate observations that are now systematically made and reduced at the great observatories of Europe enable us to solve for a tolerably large number of stars. If, in star observations at the different observatories, anything like an organised plan of division of labour had been adopted and carried out for a period of some years, we should have at the present time means of determining accurately the places of at least all the stars contained in the three great fundamental catalogues of Bradley, Piazzi, and Groombridge, and consequently every facility for determining the proper motions of all the stars contained in those catalogues. In the instance of the last-mentioned catalogue, viz. that of Groombridge, we shall soon, through the well-directed labours of Mr. Johnson, be thus situated. He has, with an energy deserving the highest praise, very nearly completed the reobservation of all Groombridge's stars, and the formation of the catalogue containing the resulting places will form a new epoch in the sidereal astronomy of the northern heavens. But in general no systematic reobservation of the other great catalogues has been attempted, and the proper motions of stars must be deduced from the results that are found scattered in the obser-

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